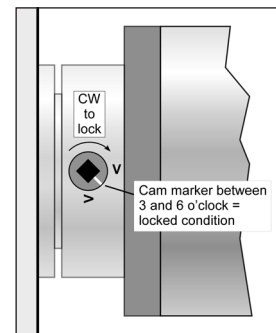


Precision Matthews 5C Collet Chuck for D1-4 and D1-5 Camlock Mounts

The Camlock D1-4 version is shown here. The D1-5 version is larger, with 6 studs, but otherwise similar.



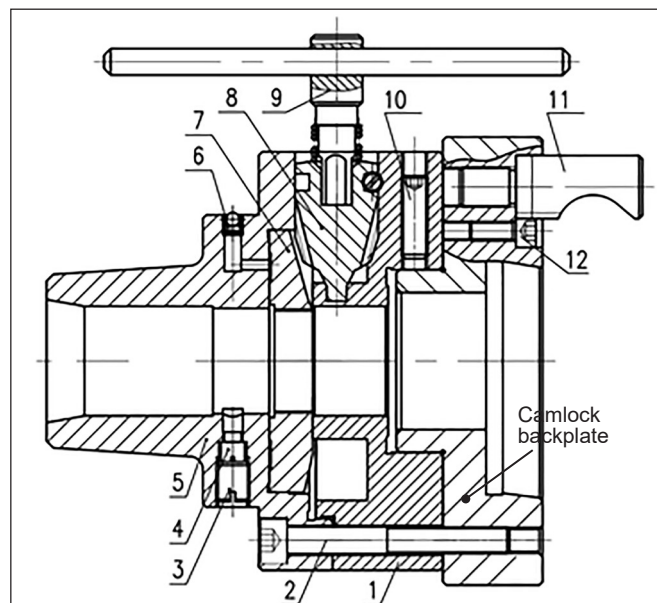
1. Detach the chuck housing from the Camlock backplate (3 clamp screws).
2. If supplied loose, install studs on the Camlock backplate. Screw the studs in to the register groove about 3/16" above the shoulder. Install the three anti-rotation M6 socket head screws.
3. Install the backplate on the spindle nose, then tighten the Camlocks securely, cam markers as shown. If this is not possible, unscrew the stud in question one full turn, then re-install its anti-rotation screw.
4. If the spindle has a datum (such as a "0") scratch-mark the backplate alongside to ensure that it will always be installed in the same location. If no spindle datum, scratch-mark both items.



5. With a 0.001" feeler gauge check for flush fitting of the backplate on the spindle face. There should be no detectable gap. If there is a gap, it may be because the backplate bore* is bottoming on the tapered nose of the spindle. Shimming may be necessary.

* 2.5" for D1-4, 3.25" for D1-5

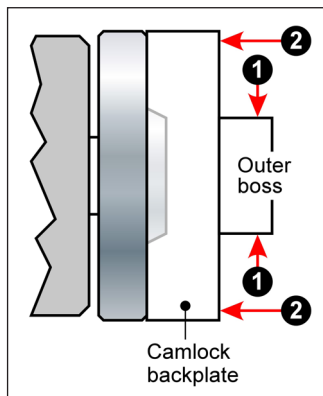
6. Test the fit the chuck housing on the outer boss of the backplate. There should be diametrical play of about ± 0.005 " or more. The exact amount is not important, because it will later be taken up by the concentricity adjuster screws.
- (continued over)



1	Bevel gear housing
2	Clamp screw (1 of 3)
3	Set screw
4	Anti-rotation pin
5	Chuck housing
6	Oil port
7	Main bevel gear, internally threaded for collet
8	Small bevel gear, rotates main bevel gear
9	T-wrench (turns small bevel gear)
10	Concentricity adjuster screw (1 of 4)
11	D1 Camlock stud
12	Stud anti-rotation screw (M6 socket head)

! Steps 7 and 8 will make permanent changes to the Camlock backplate — call Precision Matthews for guidance. First, be sure the mating surfaces of spindle and backplate are clean, and the backplate is seated firmly, with the Camlocks properly tightened.

7. With a dial indicator, check radial runout on the outer boss. If this is excessive, beyond the point where the adjuster screws can compensate for it, consider skimming a minimum amount off the boss diameter, arrows #1.

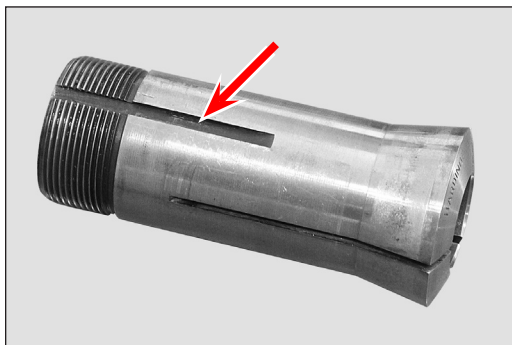


8. Check runout on the face of the Camlock backplate. If this is ± 0.0005 " or more TIR, consider skimming a minimum amount off the face, arrows #2.
9. Install the housing on the backplate, holding it in place with the three socket head clamp screws. Snug the screws, but don't fully tighten.

To check concentricity of the assembly, you will need a ground rod, say 1/2" diameter, and a matching 5C collet.

Off-the-shelf raw bar stock is not reliably round enough for this test.

INSTALLING THE COLLET



1. Insert the 5C collet into the chuck housing, with its alignment groove (arrowed) engaging the anti-rotation pin (#4 in diagram).
2. Engage the collet's screw thread in the main bevel gear, (#7), then turn the T-wrench (#9) to draw the collet in. (Due to the high gearing between the two bevel gears, this takes a lot of turning.)
3. Insert the ground rod into the collet.
4. Fully tighten the collet with the T-wrench.

5. Using a dial indicator, test for concentricity of the ground rod. (For initial tests, to minimize the effect of swashplate error — runout on the Camlock backplate face — set the dial indicator close to the collet.)
6. Make sure the three clamp screws securing the chuck housing to the backplate are not so tight that the concentricity adjuster screws cannot shift the housing.
7. Using an iterative procedure similar to centering a 4-jaw chuck, adjust the four adjuster screws for minimum runout.
8. Tighten the three clamp screws, then recheck runout. Repeat step (7) if necessary.

